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Title: Exploring Spatially Adjustive Modelling in Park Disparities under Different Park Access Measures in Hartford, CT

Abstract:

Park access disparities among urban dwellers have been widely examined in U.S. cities yet the results varied by geographic contexts and different measures of greenspace access. This study investigated park access by three parameters: park access rate, persons per acre of park land, and park crime rate, to examine whether public park access are evenly distributed among population with different socio-economic status (SES) and whether the relationship is constant over space in post-industrial cities at census block group level. Spatial statistical models including spatial regression and geographically weighted regression (GWR) were estimated to account for spatial dependence and spatial non-stationarity in Hartford, Connecticut. Descriptive statistics identified Hispanic and Black dominant neighborhoods have higher-than-average park congestion and southern downtown neighborhoods were identified as park crime hotspots. Even though there were no severe disparities among low-income and racial minorities in terms of park access rate and acreage, negative binomial regression indicated neighborhoods with higher income access to safer parks. GWR and Geographically weighted Poisson Regression (GWPR) models indicate significant spatial heterogeneity across neighborhoods in the city in the SES-Park equity relationship, affected by park legacy, racial segregation, and regional landscape. Different from northern city where the largest public park is located, southern and central parts of city are more problematic with park disparities in both park crowdedness and park unsafety. Future park planning resources should be prioritized to the area with severer disparities and focus on enhancing park patrols in park crime hotspots. And as property vacancy rates are more associated with less park access and park crime increase in certain park shortage areas, transforming vacant lots into greenspace would be future landscape planning strategies in Hartford. The presence of just distribution of park access rate and acreage among racial ethnic groups in Hartford is contributed by previous park legacies and the underlying procedural injustice such as racial segregation policy legacies.